

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-017222**Date Inspected:** 01-Oct-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 900**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site

<b>CWI Name:</b>	William Sherwood and Tom Pasqua			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	Orthotropic Box Girder		

**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 7E/8E bottom plate 'D' inside, QA randomly observed ABF certified welder James Zhen ID #6001 and Songtao, Huang ID #3794 perform 1G (flat position) Submerged Arc Welding (SAW). The welders were welding cover pass on the CJP utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1. The joint being welded had a single V-groove butt joint with backing bar. The plates were preheated to more than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System located at the opposite side of the plate prior/during welding. Welding parameters were monitored by ABF/QC William Sherwood. QA noted the welding parameters, the workmanship and appearance of the completed fill deemed satisfactory. At the end of the shift, SAW cover pass welding was completed and the welders were noted moving to the top deck plate of the same OBG.

At OBG 7E/8E top deck plate A1 and A5 butt joint ends, QA randomly observed ABF/JV qualified welders Xiao Jian Wan and Hua Qiang Huang welding fill pass to cover pass on top deck plates 'A1' and 'A5' joint ends (approximately 20 inches long) where the Submerged Arc Welding (SAW) track mounted feeder has limited access. The welders were utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1. The joint had a single V-groove butt joint design with the bottom plate being seal

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welded with backing bar. The plate with the backing bar was preheated to greater than 150 degrees Fahrenheit using propane gas torch. The two areas where the welders were welding were completed and have moved to bottom plate 'D' inside of the same OBG.

At OBG 7E/8E bottom plate 'D' inside, QA noted ABF welders Xiao Jian Wan and Hua Qiang Huang have moved here after the completion of the FCAW-G on both ends (A1 and A5) of the top deck splice joint. The welders observed perform fill pass welding on the north side (1000mm long) and south side (600mm long) respectively on the splice butt joint where SAW was not performed due to limited access of track mounted SAW wire feeder. The welders were utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3040A-1. The joint being welded had a single V-groove butt joint with backing bar. The splice joint was preheated and maintained to greater than 150 degrees Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located at the opposite side of the plate prior/during welding.

At OBG 7E/8E top deck plate 'A1 to A5', QA randomly observed ABF certified welder James Zhen ID #6001 and Mike Maday ID #3391 perform 1G (flat position) Submerged Arc Welding (SAW) on the splice butt joint. Welder Mike Maday was noted welding from A1 to A3 while welder James Zhen was welding on A3 to A5. The welders were utilizing F7A6-EM12K-H8, 3.2mm electrode with corresponding Esab OK Flux 10.62 flux and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-4042B-1. The Complete Joint Penetration (CJP) being welded had a single V-groove butt joint with backing bar. The plates were preheated to more than 150 degree Fahrenheit using Miller Proheat 35 Induction Heating System heater blankets located on top of the plate prior welding and moving it the side during welding. ABF/QC William Sherwood was noted monitoring the welding parameters of welders Mike Maday and James Zhen. QA noted the welding parameters, the workmanship and appearance of the completed root pass deemed satisfactory.

After the completion of the root pass, ABF personnel was observed removing the slag off the weld and then cleaning the weld by using wire wheel grinder in preparation for the Magnetic Particle testing (MT). QA noted QC performed visual inspection on the root pass after it was cleaned. After the QC VT, QA has noted QC William Sherwood and Tom Pasqualone also performed the Magnetic Particle Testing (MT) on the same root pass that just SAW welded. Since there were no significant defects noted during the MT, ABF welders resumed their SAW welding using the same procedure mentioned above on the splice butt joint.

QA observed the Complete Joint Penetration (CJP) of the erection access hole insert plate identified as Weld Number (WN): 1E-PP11-E4-W2 on the "A" deck of the Orthotropic Box Girder (OBG) E1. The welding was performed by the welder Wai Kitlai ID-2953 utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1110B, Rev. 1. The WPS was also utilized by the QC inspector Steve McConnell as a reference to monitor the welding and verify the Direct Current Electrode Positive (DCEP) welding parameters which was recorded as 131 amps by the QC inspector. The 3.2 mm Lincoln electrode was utilized with the welding performed in the overhead (4G) position and the work placed in an approximately horizontal plane and the weld metal deposited from the underside.

QA also observed ABF QC, William Sherwood, perform the Magnetic Particle Testing (MPT) of the back grinding on the welding joint identified as WN: 1E-PP11-E4-W2. At the conclusion of the testing no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure

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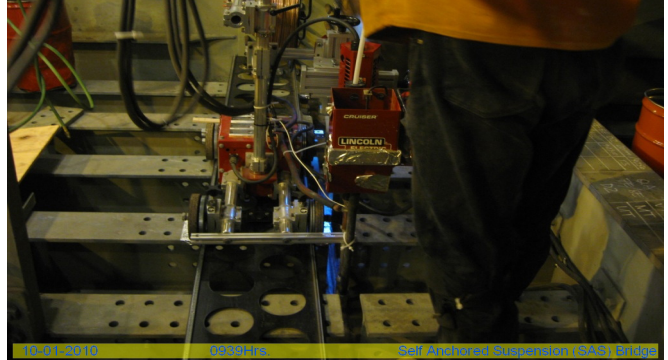
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identified as SE-MT-CT-D1.5-101 Rev. 4.

At OBG 7E/8E top deck plate 'A' outside, ABF welders Songtao, Huang and James Zhen with the supervision of Mr. Dan Ieraci were observed performing Submerged Arc Welding (SAW) welding root pass on the splice butt joint.



At OBG 7E/8E bottom plate 'D' inside, ABF welders James Zhen and Songtao, Huang were observed continuing to perform Submerged Arc Welding (SAW) on the splice butt joint.



At OBG 7E/8E top deck plate 'A5' outside, ABF welder Xiao Jian Wan was observed continuing to perform FCAW-G seal welding the top deck plates and backing bar.



At OBG 7E/8E top deck plate 'A' outside, ABF QC Tom Pasqualone was observed performing Magnetic Particle Testing (MT) on the Submerged Arc Welding (SAW) welded root pass of the splice butt joint.



### Summary of Conversations:

No significant conversation occurred today.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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**Inspected By:** Lizardo, Joselito

Quality Assurance Inspector

**Reviewed By:** Levell, Bill

QA Reviewer